

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1 (cancelled) A method for making a mesoporous metal carbonate structure comprising the steps of:
 - a. providing a solution containing a non-ionic surfactant and a metal salt having an organic counter ion,
 - b. adding sufficient base to react with the acidic byproducts to be formed by the addition of carbon dioxide, and
 - c. adding carbon dioxide, thereby forming a mesoporous metal carbonate structure containing the metal from said metal salt.
- 2 (cancelled) The method of **Claim 1** further comprising the step of selecting said metal as an alkaline earth metal.
- 3 (cancelled) The method of **Claim 2** further comprising the step of selecting said alkaline earth metal from the group consisting of Be, Mg, Ca, Sr, Ba, and Ra.
- 4 (cancelled) The method of **Claim 1** further comprising the step of selecting said metal as a transition metal.
- 5 (cancelled) The method of **Claim 4** further comprising the step of selecting said transition metal from the group consisting of Ni, Ti, and Zn.
- 6 (cancelled) The method of **Claim 1** further comprising the step of selecting said metal as an alkali metal.
- 7 (cancelled) The method of **Claim 6** further comprising the step of selecting said alkali metal as Li.

- 8 (cancelled) The method of **Claim 1** further comprising the step of removing any residual non-ionic surfactant and organic counter ion by exposing the mesoporous metal carbonate structure to a solvent.
- 9 (cancelled) The method of **Claim 8** further comprising the step of removing any residual non-ionic surfactant and organic counter ion by exposing the mesoporous metal carbonate structure to a solvent selected as supercritical carbon dioxide.
- 10 (original) A mesoporous metal carbonate structure having pores between about 1 nanometer and about 150 nanometers.
- 11 (original) The mesoporous metal carbonate structure of **Claim 10** wherein said metal is selected as an alkaline earth metal.
- 12 (original) The mesoporous metal carbonate structure of **Claim 11** wherein said alkaline earth metal is selected from the group consisting of Be, Mg, Ca, Sr, Ba, and Ra.
- 13 (original) The mesoporous metal carbonate structure of **Claim 10** wherein said metal is selected as a transition metal.
- 14 (original) The mesoporous metal carbonate structure of **Claim 13** wherein said transition metal is selected from the group consisting of Ni, Ti, and Zn.
- 15 (original) The mesoporous metal carbonate structure of **Claim 10** wherein said metal is selected as an alkali metal.
- 16 (original) The mesoporous metal carbonate structure of **Claim 15** wherein said alkali metal is selected as Li.
- 17 (cancelled) A method for making a mesoporous metal carbonate structure comprising the steps of:

- a. providing a solution containing a non-ionic surfactant and a calcium acetate salt,
- b. adding sufficient base to react with the acidic byproducts to be formed by the addition of carbon dioxide, and
- c. adding carbon dioxide, thereby forming a mesoporous metal carbonate structure containing the metal from said metal salt.

18 (cancelled) The method of **Claim 17** further comprising the step of selecting said metal as an alkaline earth metal.

19 (cancelled) The method of **Claim 18** further comprising the step of selecting said alkaline earth metal from the group consisting of Be, Mg, Ca, Sr, Ba, and Ra.

20 (cancelled) The method of **Claim 17** further comprising the step of selecting said metal as a transition metal.

21 (cancelled) The method of **Claim 20** further comprising the step of selecting said transition metal from the group consisting of Ni, Ti, and Zn.

22 (cancelled) The method of **Claim 17** further comprising the step of selecting said metal as an alkali metal.

23 (cancelled) The method of **Claim 22** further comprising the step of selecting said alkali metal as Li.

24 (cancelled) The method of **Claim 17** further comprising the step of removing any residual non-ionic surfactant and organic counter ion by exposing the mesoporous metal carbonate structure to a solvent.

25 (cancelled) The method of **Claim 24** further comprising the step of removing any residual non-ionic surfactant and organic counter ion by exposing the

mesoporous metal carbonate structure to a solvent selected as supercritical carbon dioxide.